

Listing of Claims

The following listing of claims is intended to supersede all previously filed listings of claims. Changes are shown with deletions in ~~strikethrough~~ and additions underlined.

Kindly enter the following amendments to the claims:

1. (Previously Presented) A method for aseptically filling a package having an inside, a filling aperture, and a membrane fitted over the filling aperture the membrane being configured to be disposed in a first position in which the membrane is substantially impenetrable to vapour and a second position in which the membrane has been displaced to permit the insertion of an elongated member into the package, the method comprising the steps of:

filling the inside of the package with a sterilizing vapour by configuring the membrane to be disposed in the second position;

holding the sterilizing vapour on the inside of the package for a sufficient amount of time to sterilize the inside of the package by configuring the membrane to be disposed in the first position;

moving the package to a filling location with the sterilizing vapour inside the package and with the membrane disposed in the first position;

removing a portion of the sterilizing vapour at the filling location by configuring the membrane to be disposed in the second position;

without displacing the package to another location, filling the package with a product at the filling location; and

capping the filling aperture of the package containing the product;

wherein the membrane is in place over the filling aperture during all steps of the method.

2. (Original) The method of claim 1, further comprising the step of allowing a sufficient quantity of the sterilizing vapour to exit the package before filling the package with a product to avoid affecting the quality of the product, wherein the sterilizing vapour exits the package and sterilizes a part of a filling device that comes into contact with the product.

3. (Original) The method of claim 1, wherein the membrane material is an elastomer

selected from the group consisting of silicone rubber, natural rubber, butadiene, nitrile, sulphonic, isoprene, polyurethane, and viton.

4. (Original) The method of claim 1, wherein the membrane opens to greater than about 10% of the area of the filling aperture during the filling steps.

5. (Original) The method of claim 2, further comprising the step of displacing the sterilizing vapour with sterile air, wherein the sterile air forms a headspace of the capped package.

6. (Original) The method of claim 2, further comprising the step of displacing the sterilizing vapour with inert, sterile gas, wherein the inert sterile gas forms a headspace of the capped package.

7. (Original) The method of claim 2, further comprising the step of pressing the membrane segments tightly against inner walls of the package to accelerate displacement of the sterilizing vapour by eliminating the gap between membrane segments and the inside of the package.

8. (Previously Presented) The method of claim 1, wherein the removal of the sterilizing vapour includes allowing the sterilizing vapour to exit from the package during the step of filling the package, and wherein the sterilizing vapour that exits the package sterilizes an external surface of the package.

9. (Original) The method of claim 1, further comprising the step of conveying the package between the filling steps and the capping step in a non-sterile atmosphere, wherein the inside of the package remains substantially free of microbiological contamination.

10. (Original) The method of claim 1, further comprising the step of wetting the membrane with a fluid, wherein the wetted membrane has an increased ability to prevent entry of contaminants.

11. (Original) The method of claim 10, wherein the fluid contains a bactericide and a thickener to increase the viscosity of the fluid.

12. (Original) The method of claim 1, further comprising the step of heating the package, wherein the heating increases the internal pressure of the gas in the package, and enhances prevention of entry of contaminants into the package.

13. (Original) The method of claim 1, wherein the method is performed using conventional non-aseptic filling equipment adapted to fill aseptically.

14. (Original) The method of claim 13, wherein the non-aseptic filling equipment is used aseptically part time.

15. (Original) The method of claim 1, further comprising the step of sterilizing an outside surface of the membrane before the capping step.

16. (Original) The method of claim 15, wherein the step of sterilizing an outside surface of the membrane is achieved with a sterilizing medium that has a sterilizing effect of limited duration.

17. (Original) The method of claim 15, wherein the step of sterilizing an outside surface of the membrane is achieved with a sterilizing medium that does not affect the quality of the product in small amounts.

18. (Original) The method of claim 1, further comprising the step of rinsing the parts of the filling device that come in contact with the product to be filled with hot water after each filling step.

19. (Currently Amended) The method of claim 18, further comprising the step of sterilizing the parts of the filling device that come in contact with the product to be filled between filling operations by spraying with chlorinated water, by ultraviolet light, by enclosing

in sterilizing vapour, or any combination thereof.

20-65. (Cancelled)

66. (Previously Presented) The method of claim 1, further comprising:
conveying the package from a location for filling the package with a sterilizing vapour to
the filling location, the package having the sterilizing medium substantially sealed inside of the
package while the package is being conveyed.

67. (Cancelled)

68. (Previously Presented) The method of claim 1, further comprising:
disposing a cap over the membrane, whereby the membrane becomes integral to the cap
after the cap is disposed over the membrane.

69.-70. (Cancelled)

71. (Previously Presented) A method for aseptically filling a package having an inside,
the package consisting essentially of one opening, the opening being a filling aperture, and a
membrane fitted over the filling aperture the membrane being configured to be disposed in a first
position in which the membrane is substantially impenetrable to vapour and a second position in
which the membrane has been displaced to permit the insertion of an elongated member into the
package, the method comprising the steps of:

filling the inside of the package with a sterilizing vapour by configuring the membrane to
be disposed in the second position;

holding the sterilizing vapour on the inside of the package for a sufficient amount of time
to sterilize the inside of the package by configuring the membrane to be disposed in the first
position;

moving the package to a filling location with the sterilizing vapour inside the package
and with the membrane disposed in the first position;

removing a portion of the sterilizing vapour at the filling location by configuring the
membrane to be disposed in the second position;

filling the package with a product at the filling location; and
capping the filling aperture of the package containing the product;
wherein the membrane is in place over the filling aperture during all steps of the method.

72. (Previously Presented) A method for aseptically filling a package having an inside, a filling aperture, and a membrane fitted over the filling aperture the membrane being configured to be disposed in a first position in which the membrane is substantially impenetrable to vapour and a second position in which the membrane has been displaced to permit the insertion of an elongated member into the package, the method comprising the steps of:

 Moving the package through an inlet into an enclosure;
 filling the inside of the package with a sterilizing vapour by configuring the membrane to be disposed in the second position;
 holding the sterilizing vapour on the inside of the package for a sufficient amount of time to sterilize the inside of the package by configuring the membrane to be disposed in the first position;
 moving the package out of an outlet from said enclosure to a filling location with the sterilizing vapour inside the package and with the membrane disposed in the first position;
 removing a portion of the sterilizing vapour at the filling location by configuring the membrane to be disposed in the second position;
 filling the package with a product at the filling location; and
 capping the filling aperture of the package containing the product;
 wherein the membrane is in place over the filling aperture during all steps of the method.